1-8-2011

The Aftermath of the Exxon Valdez Oil Spill

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After the Exxon Valdez ran aground in the Prince William Sound and discharged millions of gallons of crude oil, the real “disaster” began to unfold – marine life began to die, fisheries collapsed, fishermen lost their livelihoods, families fell apart. But perhaps the disaster began even earlier, when the oil was piped from the North Slope to Valdez. Perhaps even earlier than that, when the Trans-Alaska Pipeline System became operational. It is clear that something went wrong along the way; otherwise, how could a single man's inebriation result in a massive environmental disaster with such far-reaching consequences? More importantly, since it is virtually impossible to foresee every single failure in the complex system of upstream and downstream activities, what can we do to prevent disasters and to minimize their impacts?

I. The Farber, Plater and Freudenburg (FPF) Framework for Examining Disasters

According to Farber, disasters require a "circle of risk management." On a fundamental level, the notion of a circular approach to disasters makes sense - at least theoretically, humans will learn from past events and apply that knowledge to minimize losses if a similar event repeats. Farber's circle comprises four main events: mitigation, emergency response, compensation and rebuilding. In essence, before a potential loss-causing event humans prepare for the event using foresight and knowledge gained from prior experiences; immediately after the event humans respond with short-term measures designed to contain the effects of the event and to save lives; after the immediate response, a longer period of restoration (both people and property) includes

compensating the victims of the event and rebuilding the effected area in a way that ties directly into mitigation.

Zygmund Plater, in his New York Times Online Forum piece on the BP Deepwater incident, divides human intercourse with disaster into four “strategic sectors” that are almost identical (indeed, identical in practice) to Farber's circle of risk management. While Plater does not expressly arrange his “strategic sectors” in a circle, it is only natural to suppose that the knowledge gained from human experience with a disaster will be incorporated in the “prevention” sector.

It is precisely this “prevention” sector that is the focus of Freudenburg's Catastrophe in the Making. But Freudenburg expands this concept to encompass not just prevention mechanisms designed for a particular type of disaster, but also the conscious, socially acceptable choices we make in arranging our surroundings that make us more vulnerable. Freudenburg suggests what is intuitively correct, that had the story of human settlement and development of the New Orleans region been different, hurricane Katrina may not have been a disaster at all, but simply another weather phenomenon playing out the natural course of its brief life. Freudenburg points out that humans think of disasters as uncommon, unexpected, unplanned and uncontrollable, while ignoring the fact that human actions regarded as ordinary “set the table and ring the dinner bell” for this uncommon dinner guest.

The combined framework of Farber, Plater and Freudenburg (FPF) for examining human intercourse with a disaster includes not only the human activities immediately before, during and after a particular disaster, but also the social choices that undergird the preparation and rebuilding. The FPF framework can therefore be summarized as follows:

1. Social Values,
2. Preparation,
3. Emergency Response,
4. Restoration, and
5. Compensation and Accountability

In the following sections, we use the FPF framework in discussing the Exxon Valdez Oil Spill (EVOS) and the places where we can look for answers.

II. Social Choices – Do We Dig Our Own Grave?

Arguably, the most unfortunate consequences of the EVOS were damage to the rich ecosystems of the Prince William Sound and the Gulf of Alaska. Additionally, detrimental effects on local fisheries resulted in economic losses to local fishing communities, and allegedly inadequate personal protective equipment (PPE) and improper response techniques resulted in long-term adverse health effects in spill responders. While Riki Ott's *Sound Truth and Corporate Myth$* overwhelmingly focused on Exxon's unseemly behavior in the aftermath of the spill, Ott had also pointed to some of the larger social factors that arguably precipitated the incident, or at least resulted in Exxon not shouldering the proper share of the burden.

Individually, we may value things differently than as a society. Observers like Ott point out that the focus of the United States collective has increasingly been development and economic growth. This focus has likely shifted attention and resources from items that are ancillary to activities that promote development and growth. For example, when a government project has strong support across all levels of stakeholders, the project's Environmental Impact Statement

(EIS) is likely to receive less scrutiny in the review process. Similarly, if the extraction of oil from Alaska's North Slope, its transport to the port at Valdez (that is, the construction of the Trans-Alaska Pipeline System [TAPS]), and subsequent transport to refineries in California was a popular proposal, strict scrutiny of the project's environmental impacts may not have been a priority for those granting project permits or those ultimately responsible for the project's operation. No doubt environmental organizations such as the Sierra Club and the Natural Resources Defense Council (NRDC) participated in the EIS review, but there is a limit to what these organizations can do to force the project sponsors to reevaluate the value judgments underlying the benefit-cost analysis of project alternatives.

The importance of developing oil fields in Alaska's North Slope is not doubted; this development generated tremendous revenues for the State of Alaska, increased returns to shareholders in the participating oil companies, played an important role in our national energy security and lessened our dependence on oil from the Middle East. But these "benefits" were truly benefits largely because the United States consumes astronomical quantities of oil products, and has grown dependent on oil for economic activity (transportation, petrochemicals, plastics, etc.) It is very likely that a wholesale shift of social priorities, and of the paradigm of how to achieve those priorities, is necessary to make meaningful improvements in how we develop and consume resources.

III. Maybe Science Holds the Answers

Since before the agricultural revolution, humans have been applying their big brains to control and exploit the Earth's resources. Complex natural systems have been replaced by uniformity; redundancies have been eliminated. Such "advances" made it possible for the human population

to grow on an unprecedented scale. With increasing population, crowded urban centers emerged, and more areas had to be brought under control for human habitation and food production. In many ways, these changes made humans more vulnerable to disasters – think of the earthquakes and fires in major cities, disease epidemics along trade routes, and theories explaining the Classic Maya Collapse.

Over the past century, humans have increasingly put their faith in science to solve problems facing an ever increasing population. Riskier endeavors required increasingly advanced technologies to prevent failure and to respond to accidents. For example, the earliest modern oil wells were drilled vertically to relatively shallow depths. The need to develop oil reserves located deep beneath the oceans and in hostile environments such as Alaska's North Slope prompted advances in drilling and oil transport, and attendant advances in technologies designed to prevent and respond to oil spills. Arguably, advances in spill response have not caught up with advances in production. The response to EVOS was composed largely of the following elements: use of chemical dispersants, manual skimming with booms and sorbent pads, and pressurized hot water washing of beaches. (Ott). According to some sources, the EVOS cleanup caused more damage than did the spilled oil. The pressurized hot water wiped away rockweed and intertidal species that had survived the effects of the oil, and the dispersants may have caused long-term effects in the clean-up workers. (Ott).

More than twenty years after EVOS, the response technologies employed in the Gulf of Mexico spill are essentially the same as in EVOS. Reported consequences of dispersant use in the Gulf of Mexico include dolphin mortalities from hemorrhaging, dispersant workers passing blood in their urine, and residents of coastal communities reporting breathing illnesses and blood effects.

(40 ELR 11044). Additionally, the chronic effects of large quantities of dispersants on marine life are still not known.

The manual methods of oil clean-up in the Gulf have also remained largely unchanged. These methods include the use of booms to contain and sorb oil on the water surface, and sorbent pads to remove visible oil from surfaces along the shoreline. Such manual methods usually result in very low recoveries of the spilled oil, and a comprehensive benefit-cost analysis of these manual technologies is likely to reveal greater overall cost than benefit. The environmental costs include the energy (and the attendant consequences of energy generation and use) needed to manufacture, transport, deploy and recover the booms/pads, and the landfill space for the disposal of spent booms/pads.

We can drill more than a mile beneath the ocean, but is seems our first aid kit contains little more that band-aids. Advances in science and engineering can potentially provide solutions, but our resources are focused on production technologies, not disaster prevention and response technologies. Having the capability to design, produce and implement a new technology is worthless without the incentive to do so.

IV. Maybe Law Holds the Answers

In his memoir, former BP Chief Lord Browne discusses BP's foray into Russia during the country's transition period in the 1990s and early 2000s. Contrary to popular belief, Russia had perhaps the most comprehensive environmental regulations in the world, but the regulations were used as a selective enforcement tool by the government. Fortunately, the United States does not suffer from the same malady – on balance, our environmental laws are uniformly and faithfully enforced. However, many gray areas in the law can be exploited, and close

relationships between the regulators and the regulated community can lead to lapses in oversight. A commission that investigated the EVOS found that oil companies cut corners to increase profits. (Joe Stephens, Washington Post, July 14, 2010) Regulators and industry were very close together, and the regulators approved inadequate plans for oil spill response and cleanup. (Stephens). Alaska governor-appointed commission studied the accident and concluded that the disaster was "the result of the gradual degradation of oversight and safety practices. (Stephens).

Taking advantage of gray areas in the law is a practice as old as the first laws. Something may be morally reprehensible, not in the best interest of society, or outright evil, yet still be legally defensible. During the electricity deregulation in California, Enron's former President Ken Lay told a California politician something very close to, "I don't care what kind of cooky laws you Californians put in place, I've got a bunch of really smart people that are going to figure out how to make money anyways." (Enron: Smartest Guys In The Room). The ensuing market manipulation by Enron's traders resulted in massive rolling blackouts across California, cost the State an estimated $40-45 billion and ultimately caused the State's financial crisis.

When evaluating Exxon's actions with the benefit of hindsight, it is tempting to play the "should have" game. Exxon should have done this, or should have not done that, regardless of what the regulations specifically required. For example, Exxon was not required to transport oil in double-hulled tankers; that regulation came into effect only after EVOS (and as a response to EVOS). But should the company have instituted such a measure in the face of legitimate risks that a tanker capable of holding more that 50 million gallons of oil may discharge all or most of its cargo if its single hull is damaged in a collision?

Unfortunately (or fortunately), it is impossible for the legislature to envision all potential disasters and provide for them accordingly. The answer to those problems is likely buried deeper, as Freudenburg suggests, in the social fabric and in the importance we place on "progress" and "economic development."

But the legal system can provide workable rules for accountability and compensation, largely grown out of tort law. In the aftermath of EVOS, Exxon spent over $2 billion on spill clean-up, compensation to effected coastal residents, natural resource damage payments, scientific studies for the public trust, and other penalties. Exxon's position is that it has fully paid for the injuries it caused; others, especially the compensated victims, feel that Exxon got off cheap. But the same debate is very likely to unfold in every instance where disaster victims receive compensation. In a recent interview with the Wall Street Journal, Ken Feinberg, the claims distributor for the Gulf of Mexico spill, discussed the challenges he is facing in settling claims. According to Feinberg, everyone has his hand out, and he must weed out the legitimate claims. Additionally, and predictably, most victims feel they were not paid enough. But overall, it appears the Gulf of Mexico claims settlement process is working, efficiently distributing moneys from BP's trust fund, and keeping thousands of cases out of the courts. This seems like a better alternative to litigation, which in the case of EVOS lasted twenty years.

V. Conclusion

So what have we learned from EVOS that has changed the way we prevent and respond to disasters? Perhaps we are, after all, stuck in a habitual pattern of thinking about disasters as something out of the ordinary and not something that naturally occurs as a result of the broader choices we make. Driven by basic urges to populate and dominate, we have defined as "good"

everything that promotes the subjugation and exploitation of the Earth's resources for the benefit of man; and as “bad” those ideas that stall progress. Necessarily, we create mega-systems to implement such exploitation on a massive scale. And we persecute those who would tell us that what we are doing is wrong. As long as this mindset defines us as a society, we stand very little chance of preventing another EVOS.